

of hybridization, and that the bird I saw with white inner margins to the outer tail feathers was in fact a hybrid between the two species. Examination of specimens in collections in museums in New York, Chicago and Washington where collections from Ladakh are housed failed to reveal the presence of such a suspected hybrid. However, the altitudinal separation of the species, at least until recently,

would tend to militate against the collection of such a specimen. I would urge visitors to the Ladakh area to watch out for mixed flocks of these two common species at intermediate altitudes and carefully note the presence of partially white-tailed birds such as I have described. It would seem quite likely that hybrids could occur in such an increasing, overlapping range.

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9. SOME OBSERVATIONS ON A NEST OF THE COMMON CROW-PHEASANT, *CENTROPUS SINENSIS* (STEPHENS)

The common crow-pheasant, *Centropus sinensis* (Stephens), locally known as 'Kamadi kukkar', is a common Indian bird and one of the few non-parasitic members of the Cuckoo family in India. Whistler (1963) and Ali (1976) have given notes on various habits of this bird. There is little information regarding its breeding biology. Ali and Ripley (1969) have mentioned that even the incubation period and other details of the breeding biology of the crow-pheasant are unknown. The following account summarises the observations made on a nest of this bird in Punjab. This communication will add some information to the existing knowledge about this bird.

A nest of the common crow-pheasant was discovered in a 'kahi' (*Saccharum spontaneum*) bush at village Bias Pind, district Jullundur (Punjab) while surveying that area for the nests of the blackthroated weaverbird, *Ploceus benghalensis* (Linnaeus), in 'kahi'.

Nest:

On 19th June, 1979 a 'helmet' of the blackthroated weaverbird was located on a 'kahi' bush with the owner male working on it. The

crow-pheasant started building its nest in the same bush on 20th June. On the first day of its construction, the nest was a large, elongated, loose sphere in the centre of the bush made by binding the leaves of the same bush. On the next day, more leaves were found to be incorporated in the structure and a lateral opening was distinguishable on the western side of the thick wall. The 'helmet' of the blackthroated weaverbird was also incorporated into the nest. In building the nest, both members of the crow-pheasant pair took active part. The birds went on incorporating leaves into the nest structure even after the laying of the first egg. The nest was completed on 23rd June i.e., in three days. It was built of the leaves of the 'kahi' bush only, without any other material. The completed nest measured 28 × 25 cm internally, with the entrance hole measuring 15 × 19 cm. It was placed at a height of 1.4 m from the ground.

Eggs:

The first egg was laid on 22nd June and subsequently four eggs were laid at intervals of one, two, two and three days respectively. The

clutch comprising of five eggs was completed on 30th June. Each freshly laid egg was marked by me with a lead pencil, measured with a vernier callipers and weighed with a two-pan field balance true to 50 mg. The measurements of the egg number 2 could not be taken as it slipped from hand and was broken after having been weighed. The eggs were white, chalky and oval. Mean size of four eggs was $34.78 \pm 2.05 \times 30.03 \pm 1.39$ mm and mean weight of five eggs was 18.88 ± 2.81 g each.

Incubation period:

Out of the four eggs in the nest, only three hatched. Egg number 1 hatched after 18 days, number 4 also after 18 days and number 5 after 16 days. Egg number 3 did not hatch and was not removed from the nest by the birds till the last day of observation. The mean incubation period of 3 eggs was 17.33 ± 1.15 days.

Nestlings:

The nestlings in the nest were observed daily and notes were made on their morphological appearance. Unfortunately, these observations could not be completed as the two nestlings present in the nest were missing (most probably due to predation) on 22nd July when nestling number 1 was 12 days old and number 2 was 7 days old. Nestling number 3 had already vanished from the nest on 17th July when it was only one day old. The description of the nestlings upto eleven days of age is given below.

The newly hatched nestling is black with eyes closed. The beak is soft. Upper mandible is black with pinkish edges and bent tip. An egg-tooth is distinguishable on dorsal surface of the upper mandible about 2 mm from its tip. Lower mandible and throat are skin coloured. Legs and claws are soft and somewhat grey. Two toes of the foot point

forwards and two backwards. The entire dorsal surface of body and the forelimbs are covered with long (about 22 mm), white, hairlike down. The down on the fore limbs is somewhat shorter. Ventral surface of the body is also black with centre of the belly pinkish. There is no down on the ventral body surface.

Eyes opened when the nestling was 4 days old. Primaries, secondaries and their coverts started coming through the skin on the fifth day of age. No other feather tract was distinguishable in the 5-day old nestling. Nine-day old nestling had fully opened eyes and with the feathers of the head, spinal, humeral, femoral, crural, ventral and rectal tracts came through the skin. In all the feather tracts, the feathers came through the skin exactly below the white hairlike down and then the down is borne on the tips of the feather drums. The feather drums of none of the tracts had opened in the nine-day old nestling. The nestling was not able to sit on its feet and continued to balance its weight on its belly. In the eleven-day old nestling, tips of the drums of primaries became flattened at their tips indicating that they were ready to open.

Weight of nestlings:

The nestlings were weighed daily in the morning, and their weights upto eleven days of age was obtained. These data show that the mean weight of the newly hatched nestling was 16.083 g ($n=3$) which is less than the mean weight of the egg. Within eleven days, the nestlings attained 175 g of weight.

Food of nestlings:

On 17th July, when nestling number 1 was taken out of the nest, the tail of a lizard was found in its mouth. While pulling out, it got broken and the lizard could not be identified. On 21st July, one of the parent birds was observed bringing a lizard to its nest. When it

entered the nest it was disturbed and the bird could not feed the lizard to the nestling and dropped it in the nest in its hurry. It was a decapitated lizard, of *Calotes* sp.

These observations reveal that this nest of the crow-pheasant was completed in three days and both members of the pair took active part

in nest building. Five eggs were laid in the nest. The incubation period extended from 16 to 18 days (average 17.33 ± 1.15 days). The young ones are altricial and nidicolous. The parents fed the young on animal food including *Calotes* lizards. Nesting success was poor, probably due to predation.

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10. 'HELPERS' AMONG THE BLACK DRONGO (*DICRURUS ADSIMILIS*)

Cooperative breeding, in which group members, other than breeding pair, take part in feeding and protecting the nestlings, has been observed in many species of group territorial birds (see Skutch 1961; Zacharias and Mathew 1977; Emlen 1978; Gaston 1978). Helpers in Black drongo have not been recorded (e.g., Shukkur and Joseph 1980). On 23rd March, 1980, while following a group of Whiteheaded babblers *Turdoides affinis* in Sivakasi (9°27'N, 77°49'E), we saw two helpers or 'auxillaries' (Emlen 1978) assisting two adult drongos in feeding 3 young.

Sex identification of the adults was not possible. The four adults were differentiated based on differences in the forked tails: one had a cleft in the left half of the forked tail, another had a cleft in the right half, the third had a perfectly forked tail and the fourth had white spots on the ventral side of its evenly forked tail. The fledglings, seen on an *Albizia leb-*

bek tree at a height of 8 m, had stumpy rec- trices. In order to assess the number of times fledglings were fed the young were assigned names A, B and C, as per their perching position. The number of insects fed to each fledg- ling was recorded from 1151 to 1740 hrs. Afterwards, as the fledglings moved from perch to perch it was given up.

The adults brought grasshoppers, damsel- flies, butterflies and larvae from distances over 50 m and also caught insects flying close to the tree. The adults collectively fed the fledg- lings 81 times between 1151 and 1848 hrs. Two types of feeding were recorded. Out of the total 81, 66 times the adults came with food and perched on branches at a distance of 2 m from the fledglings. On seeing the adult, fledglings begged for food characterised by begging call, vigorous wing shake and open mouth. The fledgling which begged more got the food. In the second type of feeding, which